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Project Management:

A Guide for Human Resources Management and Support Project Managers

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Table of Contents

		Page
1.	Introduction	1
	1.1 Why Use This Guide?	1
	1.2 Intended Audience	1
	1.3 Organization of the Guide	1
2.	Introduction to Project Management	3
	2.1 What is Project Management?	3
	2.2 When is Project Management Appropriate?	4
	2.3 The Roles Involved in Project Management	4
	2.4 The Project Team as Change Agent	6
	2.5 The Project Planning and Control Process	7
3.	Project Management Process	9
	3.1 Initiating a Project	10
	3.2 Client Contract	13
	3.3 Organizing the Project Team	14
	3.3.1 Project team concepts and issues	14
	3.3.2 Selecting the project team	15
	3.3.3 Project manager skills	16
	3.3.4 Team member skills	17
	3.3.5 Educating and training the project team	18
	3.3.6 Organization and team building	18
	3.3.7 Logistical support	21
	3.4 Planning the Project	21
	3.4.1 Developing the detail work plan	23

3.4.1.1 Develop work breakdown structure (WBS) 24

3.4.1.2 Develop work flow structure 26

3.4.1.3 Develop project estimates 28

3.4.1.4 Develop project schedule 30

3.4.1.5 Develop project budget 32

3.4.1.6 Conclusion 33

3.4.2 Action plan for sponsors 33

3.4.3 Planning in an uncertain environment 34

3.5 Executing the Plan 35

3.5.1 Day-to-day management issues 35

3.5.2 Controlling the project 39

3.5.3 Controlling changes 42

3.6 Reviewing and Reporting Progress 43

3.7 Assessing and Rewarding Performance 44

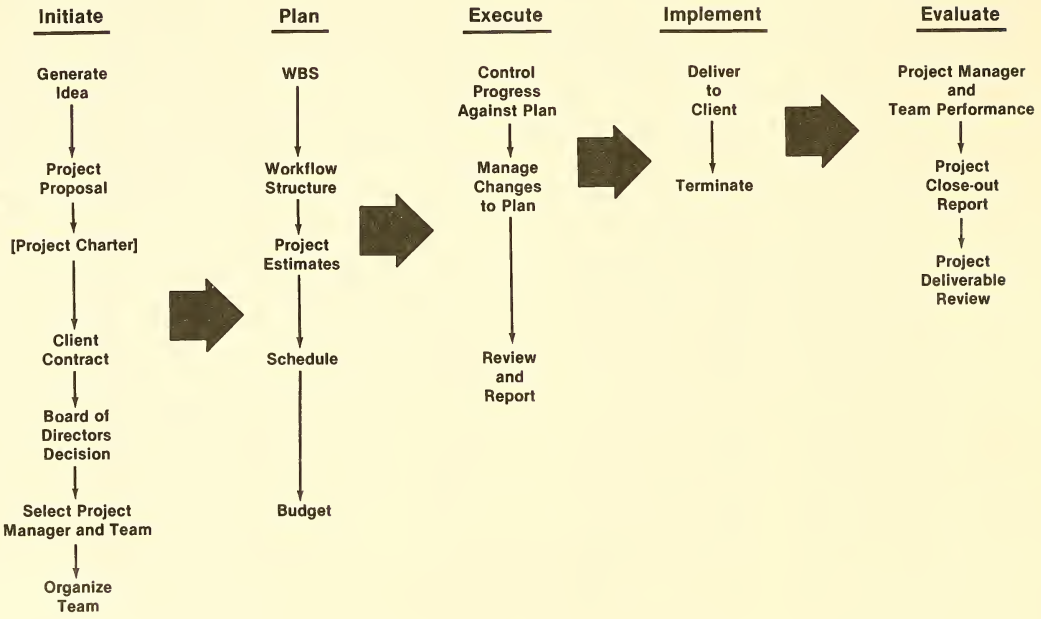
3.8 Terminating the Project 48

3.9 Post Implementation Review 50

Appendices

A Project Management Process 53
B Project Knowledges and Skills 59
C Education and Training 62
D Resources 63
E Team Building 65
F System Development Life Cycle Documentation 68
G Work Breakdown Structure 70
H Critical Path Network 73

HRMS Project Management Process



1. INTRODUCTION

1.1 Why Use This Guide?

The Human Resources Management and Support organization has made a commitment to accomplish more of its work through the use of project teams. Because project management requires processes, management techniques, structures, and policies quite different from our traditional approaches, people in the organization must learn new skills if they are to operate successfully in a project management environment. This guide is one of several resources available to build these skills more quickly.

In particular, this guide addresses issues, techniques, and advice which should provide a basic introduction to project management, the implications of working in a project management environment, and some applicable approaches to project management as implemented by the Assistant Commissioner (Human Resources Management and Support). Since this guide is intended as an overview, it does not provide all of the information needed by project managers. It is definitely not a substitute for either training or practice in project management. It will be most useful if viewed as an introduction to project management as implemented in Human Resources Management and Support and as a reference to other available resources.

1.2 Intended Audience

This guide was written for both new and experienced project managers responsible for cross-functional projects under the control of the Assistant Commissioner (Human Resources Management and Support). However, other people who may find portions of this guide useful include:

- members of cross-functional project teams;
- managers and members of single function project teams;
- employees managing or participating on task forces or study groups;
- managers who supervise employees involved in project, task, or study groups; and
- employees interested in participating in projects.

1.3 Organization of the Guide

In addition to this introductory section, the guide consists of two other sections plus appendices. The next section provides an overview of

project management and the implications of managing in a project management environment. The third section provides guidance to project managers on each phase of a project development effort, from initiation to post-implementation review. It includes a mixture of concepts, implications, techniques, and advice.

The appendices provide information which supplements Sections 2 and 3 of the guide. The appendices contain examples, more detailed descriptions, and a bibliography of project management references.

2 INTRODUCTION TO PROJECT MANAGEMENT

2.1 What is Project Management?

Project management is the process of directing and coordinating human and material resources in:

- a one-time, complex work effort
- to achieve predetermined objectives
- within established parameters of quality, time, cost, and scope.

In particular, this guide applies to projects which are cross-functional within the Human Resources Management and Support organization. In addition, primary responsibility for completing the project rests with the Human Resources Management and Support organization and the project is controlled by the Human Resources Management and Support Board of Directors. Project Management is distinct from traditional management of ongoing programs since it is time-limited, established on an ad hoc basis, and not repeated.

The fact that projects focus on one overall objective, in contrast to the multiple objectives of on-going program management and oversight, permits the concentration of energy needed to tackle complex problems.

The project must also have:

- a defined objective/purpose;
- defined beginning and ending dates; and
- defined completion criteria, describing the product or end result.

Project management is generally performed through a project team -- which is separate from and operates alongside the program-oriented, functional organization. Membership on the team may be part-time or full-time, depending on the project.

How does a project differ from the work of a task force? Typically the kinds of projects covered by this guide require a greater investment of time and resources than do task forces. Project work requires a structure in which a project manager coordinates the work among functions. Once initial commitment is made to the project by executives and top managers, decision-making can be focused through a project manager where relevant information can be assembled and actively managed. Given that executive commitment, the project manager may bypass Human Resources

Management and Support vertical channels for all but major decisions. (Obviously the project manager must still coordinate information and decisions with other functions for legal decisions, contracts with vendors, and similar actions, as well as continue liaison actions with appropriate offices.)

2.2 When is Project Management Appropriate?

Project management is appropriate when:

- a task needs very close monitoring;
- tight deadlines make normal up and down communication too ponderous and time consuming; and, most frequently,
- the task is complex, requires coordination of multiple functions, requires innovation or integrated approaches, faces a high degree of uncertainty, or will result in substantial change to the way work is done.

Project management also promotes organizational flexibility, so that Human Resources Management and Support can respond more effectively and efficiently to needs of client organizations, to anticipate future needs, to be proactive in seeking out solutions to problems and adapting to a quickly changing environment outside and inside the Service.

2.3 The Roles Involved in Project Management

In conventional line-and-staff organizations, employees play certain roles. These roles are relatively few in number. Most of the people in organizations are either managers, analysts, technical specialists, support staff workers, or operators (production workers). Experience has taught employees what to expect in each of these roles, how to play them, and how to relate to them as played by others.

In a project management environment, these same roles may not be the most effective way to get the job done. Projects are often set up to be accomplished by a group of peer technical specialists. They report to one manager, who may also be a peer delegated temporary authority to coordinate the group for the life of the project. Larger, more complex projects may involve a more elaborate structure, with subordinate leaders and administrative aides, for example. In very large projects that last for years, the project management structure may evolve into a structure akin to the classic line-and-staff variety. However, most projects are in the small to midsize range, and the issue of roles that people play in these can be very important to the success of the project.

An example of several unconventional project roles help explain how project work gets done: the **catalyst**, the **sponsor**, the **entrepreneur**, the **technical gatekeeper**, the **integrator**, and the **manager**. Some of these roles may be played by the same person; on the other hand, certain roles can be shared by two or more people at one or different times. Using the list above, consider this scenario:

An analyst has an idea of how to develop an entirely new procedure for getting a complex technical task carried out routinely in the organization (analyst is **catalyst**).

However, the analyst has neither the necessary technical expertise nor the authority to get things moving. So the analyst goes to his or her boss and outlines the idea. The boss agrees to get the cooperation of another manager in putting together a team of experts from their two functional areas (boss is **sponsor**).

In the early stages of the project, progress stalls because facilities cannot be found to perform a necessary test. This problem is finally solved when two of the team specialists develop a dog-and-pony show, take it around the organization, and get the enthusiastic support of a third manager (two specialists are **entrepreneurs**).

Another team member has been appointed manager for the duration of the project. However, this person's technical skill is necessarily limited to one area. So whenever cross-functional differences of opinion come up, the project manager turns to a panel of three experienced technical gurus, who have agreed to serve the project in a consulting capacity (**technical gatekeepers**).

Another member of the team gradually takes on an informal back-room role, being especially observant of the various agendas and working styles of the technicians, and is able to give the manager insights into options for solving coordination problems that come up regularly (**integrator**).

This scenario shows how roles emerge in a project. This is an important feature of the informal organization that can make a project function effectively. Not all problems are resolved in this way, but the central principle is that in project work these dynamics will occur and need to be encouraged, at times, to substitute for the more elaborate channels that are formally designated in permanent organizations.

Note that in the scenario above, the only formally established roles are those of the project manager and the consultants. The manager has responsibility in the conventional sense for the success of the project. Some other key project manager responsibilities are:

- monitoring project costs, staff-year expenditures, and due dates;

- providing clients, the Board of Directors, and others with progress reports;

- conducting progress reviews with the clients to ensure satisfaction;

- building an effective project team;

- establishing individual and group performance expectations and evaluating performance; and

- planning, organizing, directing, and controlling all aspects of the project.

The key to the team approach is that the project manager be an effective team leader. The effective leader is receptive to good ideas and is skillful at bringing together people from a variety of functional areas. He or she must be a disciplined manager -- of time, budgets, and people. Above all the project manager must be a good decision-maker. During the course of the team's activities, hundreds of decisions must be made, some quite routine, some involving major expenditures of resources.

While the responsibilities of the team leader are usually reasonably well-defined, his or her authority depends upon leadership skills and the ability to bring issues to a conclusion. Routine decisions are made within the team, but the team leader has the responsibility to determine which other managers need to participate in the more significant decisions.

2.4 The Project Team as Change Agent

Change may enter the life and work of organizations from a variety of sources. Often a new program or system is sponsored by a senior executive. Or the change is imposed by some external authority -- for example, by a regulatory agency. Whatever the origin of a change, its concrete impact is usually brought to bear on the organization by a change agent. A change agent is the individual who makes the change happen and makes it happen in such a way that it benefits the organization in the long term.

Because organizations are complex realities, introducing change is a correspondingly complex task. Thus, whether a change agent has succeeded cannot be judged by the bare fact that the change did or did not take place. Forcing change on people may not be the most effective or even least expensive way of introducing it. Other factors must also be considered. Among such factors is the extent to which the people whose

life and work will be affected by the change accept it. The change agent role requires both wide-ranging awareness of how change best occurs and the skills to implement it.

The role of change agent is one the project team must play, almost inevitably. This puts a special responsibility on each member. The chances for project success can be greatly improved if team members are aware of the scope of the effects their work is likely to have on the organization and its people. These effects may occur long after the official end of the project. Team members should not view themselves as simply producing a product within a deadline, then returning with relief to their home in the organization.

The work of a project introduces organizational change both directly and indirectly.

A direct change is the impact, on the client organization, of the product which the project team delivers. In this regard, playing the change agent's role requires that the project team anticipate and plan for such impacts and help the client prepare for them. Their responsibility as change agents also challenges them to build into each project some provision for feedback to those who implement the output of the project on the progress of the implementation and where changes may be needed. Unless this feedback is available, the stage may be set for disappointing long-term results.

An **indirect** change is the impact, upon the Human Resources Management and Support organization and its mode of operating, of the simultaneous and parallel work of project teams. Clearly, the Human Resources Management and Support organization anticipates positive impacts from instituting project teams. Considering the emphasis being placed on the project-by-project strategy of innovation, and thus the large number of employees who may serve as team members at one time or another, a uniform approach to project management can be a powerful way for the organization to demonstrate its philosophy about change. Nevertheless, the members of each project team must give attention to how these positive impacts can be ensured and maximized.

Depending on the nature of the project at hand, taking the project team's role as change agent seriously may require dedicating time and resources to the management of organizational change. In some instances, expertise in this area may need to be represented on the project team.

2.5 The Project Planning and Control Process

The core of a project manager's job is planning and controlling the project. **Sound planning and control are the primary factors in successful projects, while failures in planning and control are too often the**

root cause of failed projects. Project managers must develop a plan at the outset of the project and then spend a considerable amount of time controlling the plan's accomplishment. This means ensuring that the plan is accomplished as defined, and, if necessary, **changing the plan to reflect unforeseen circumstances as the project evolves.**

It has often been said, "If you don't know where you're going, any road will take you there." Clearly, a prerequisite to project planning is knowing where the project is going: before planning begins, the project's objectives, scope, constraints, and deliverables must be clearly defined. Unless they are, the project team will waste valuable time visiting and revisiting scope and objective issues. Too many task forces have faced the situation in which, well into the project, people become confused about where the project is going. Often the reason is that the project's objectives were never clearly defined so that all team members understood them.

After the project's destination has been established, a route to get there must be selected. There are many alternative courses of action for achieving a project's objectives. It is not necessary to find the best course of action, but to find a course of action that makes sense given the particular circumstances. Section 3.4 of this guide provides a proven method for project planning.

A sound project plan is only the first step in successful completion of a project. The project manager must also frequently monitor progress to ensure the project is being accomplished as planned. **The overriding principle of project control is: the sooner the project manager knows a part of the project is going astray, the sooner he or she can get it back on course and the less impact the deviation will have on the overall project.** Therefore, a reliable project control process is essential for knowing when the project is going astray. Section 3.5.3 addresses project control techniques.

3. PROJECT MANAGEMENT PROCESS

This section of the guide addresses the project management process. The subsections roughly parallel the steps that the Human Resources Management and Support organization follows for cross-functional projects controlled by the Board of Directors. (The Board of Directors is a committee chaired by the Assistant Commissioner (Human Resources Management and Support) whose other members include the Deputy Assistant Commissioner (Human Resources Management and Support) and the Human Resources Management and Support Division Directors.) The Human Resources Management and Support project management process is included as Appendix A.

The Board of Directors has a prominent role in the project management process delineated in Appendix A. They approve projects, select project managers, approve action plans and significant changes, monitor progress, and evaluate the project and project manager. The Board, in effect, takes on line management responsibility for projects accomplished outside of the traditional functional organization structure. Therefore, project managers report to the Board of Directors rather than a single line manager.

Two project support mechanisms have been established to assist project managers. The first is the Office of Projects and Organizational Impacts Management, Human Resources Division, which, along with other responsibilities, serves as a project support group. This group is responsible for maintaining links to ongoing projects to offer guidance, recognize where coordination can prevent overlap and gaps, provide information on other projects, organizations, or servicewide efforts, and to identify opportunities (e.g., enhancing project scope or initiating new projects) for achieving both long- and short-term benefits to the Service. In addition, the group maintains this guide, maintains information on active and completed projects, maintains a library of reference and training material, and is available to provide advice and guidance to project managers as they confront issues and obstacles.

The second project support mechanism is a group of experienced project managers who are available to provide peer advice to project managers and to recommend improvements in the project management process to the Board of Directors.

While much of the project management process described in this section may appear to be sequential, it is, in fact, frequently iterative from two perspectives:

(1) If a project is complex, large, or lacks information necessary for planning the entire project, only early phases of the project may be planned in detail. As the project progresses,

detailed planning for later phases will occur in an iterative process until the project is completed.

(2) As a project progresses, the project team will often need to change plans and actions as they discover invalid assumptions or new/revised scope, objectives, or requirements. The team may then repeat some already completed tasks or steps in the planning process. This process of going back to earlier steps can occur repeatedly as the project proceeds.

The project manager should not only be aware that project management can be an iterative process, but should also consider building iteration into the project where appropriate.

3.1 Initiating a Project

By the time a project manager has been assigned to a project several actions should have been taken, including the preparation and Board of Directors' approval of a **Project Proposal.** The first task of the project manager is to ensure there is enough information to begin project planning. The following checklist is an aid in ensuring important items are not forgotten:

- Is there an approved project proposal?

- Does the approved project proposal include the following:

  . a description of the job to be done (objectives, client, benefits, and defined end result/product(s));

  . measurable and verifiable acceptance criteria (cost, schedule, performance specifications);

  . a project strategy and/or key activities;

  . a rough time schedule; and

  . an estimate of resources (staff, dollars, equipment, etc.) for accomplishing the project?

- Are there assumptions, constraints, issues, or activities which will affect the project or project team?

- Has the client bought into the project proposal?

If a proposal has not been developed or if important elements were omitted in the proposal, the project manager should consider developing a Project Charter which delineates the needed information. A Project

Charter can also serve as the contract between the project manager and the Board of Directors. A Project Charter should include the following information:

- Project title
- Project manager assigned
- Management responsibility to include relationship to the Board of Directors, review authority, Board member assigned as liaison to the project, and chartering authority, if needed
- Organizations affected (units participating in or affected by the project)
- Project description which includes, as a minimum, the client, scope, and objectives
- End results, especially specific deliverables (e.g., products)
- Project start, end, and key milestone dates (which are subject to change when the detailed plan is developed and approved)
- Resources allocated to the project (also subject to change when the detailed plan is developed and approved)
- Constraints or other criteria which will affect the project or project team
- Assumptions
- Criteria for measuring the success of the project
- Other responsibilities of the project manager and team, if any

After the Project Charter is developed, it is submitted it to the Board of Directors for approval. After approval, it is time to establish commitment with the client(s), organize the project team, and develop a detailed project plan.

When defining project objectives and the criteria for measuring success, it is appropriate to include the standard measures of whether a quality product is delivered on or before deadline, at or below the estimated cost, and within the range of design or performance specifications. However, recognizing that projects may have aims broader than or in addition to developing specific products or other deliverables, the following criteria, usually neglected, should also be considered:

- Client/user satisfaction

- Follow-on work

- Internal spinoff

- Change implementation

Client/user satisfaction: Even though the time, cost, and performance criteria have been met, the project's client can still be dissatisfied. Client satisfaction with the way the project was accomplished, the way conflicts were resolved, or other intangible factors may be as important as satisfaction with the end product. (Section 3.9, Post-Implementation Review discusses client evaluation of projects.)

Follow-on work: Beyond the specific products to be delivered by the project team, the Board of Directors may view the project as a foot-in-the-door effort to provide broader or longer-term support to the client. Though the standard objectives of the project may have been met, the project may not be successful unless this follow-on work is requested. Therefore, a key element of the project team's work lies in customer relations. For example, a project to develop a class on organizational problem diagnosis for a regional office could have as a secondary objective providing additional training to subsequent groups or having the project team participate in the problem diagnosis effort.

Internal spinoff: A project may be intended to develop a new capacity within the Human Resources Management and Support organization or to be the basis for a new product line. In this case, the projects' success may depend on whether the project team diffuses knowledge within Human Resources Management and Support, involves a wide range of people in the project, or develops a strategy to build a new capacity or product line after the project is completed. For example, the Project Management Task Force, which developed this project manager's guide, could have had internal spinoff objectives to prepare the Human Resources Management and Support organization for project management.

Change implementation: Some projects may have introducing change as an objective. For these projects, whether this happens is a major success criterion. Implementing a new performance management system or introducing technology into an organization requires substantial change in the way people outside the project do things. In these cases, relationships with the people whose work or behavior is targeted for change and the way the project team transfers responsibility for the change to the implementation team become critical in judging success.

3.2 Client Contract

Sometime between the time the Project Proposal and/or Project Charter is approved and a detailed project plan is developed, a commitment to the plan should be obtained from all parties who will participate in the execution of the project.

The project manager should develop a contract with the client(s) which specifies the expectations and responsibilities of both the project team and the client(s): how issues, problems, and change requests are raised and resolved; what the resource requirements are for each task; how project status will be reviewed; major milestone dates; points of contact for all involved functions; and other essential information by which all concerned parties will be kept abreast of progress.

The following is a list of the items that should be included in a contract or agreement between the project manager and the client/customer organization. This document should be prepared by the project manager after the project charter or detailed project plan has been approved and provided to the client organization for their review and approval.

- Purpose and objective of the project
- Background
- Responsibilities and expectations of all involved parties
- Designated points of contact for all functions
- How issues, problems, and change requests are raised and resolved
- Project control and tracking system
- Estimates of resources
- Major milestones and activities
- Resource requirements from the client for each task
- Resource availability and commitment
- Project review and reporting methods and timeframes
- Routing and approval procedures (for this agreement)
- Procedures for issuing amendments (to this agreement)

3.3 Organizing the Project Team

3.3.1 Project Organization Concepts and Issues

How a project team should be organized depends upon the tasks to be performed. The Human Resources Management and Support project management approach is to accomplish work using a temporary organization when there is a special need to integrate and coordinate a variety of subtasks, disciplines, and functions which are usually spread throughout the larger organization. It is most effective when there is a task requiring a new product or service or an innovative solution to a problem to be developed.

In the Human Resources Management and Support organization, a web of temporary project teams operates alongside the permanent organization structure. Recognizing the differences between operating in the traditional IRS organization and the parallel project team structure and acting accordingly is always a major challenge for new project managers.

Most offices in IRS use a functional structure. This structure is most efficient in accomplishing predictable, recurring tasks which require in-depth knowledge of a single discipline and relatively standardized work procedures. This production structure has the advantages of operating smoothly in a predictable, stable environment.

By contrast, the project team structure is designed to be highly flexible. For example, teams can be formed or disbanded as needed, and people can be readily added to the team when necessary and then returned to full-time work in their permanent organization.

This feature also distinguishes the project team structure from the classical matrix organization. In a full-blown matrix structure, the project teams become permanent organizational entities, and a dual command structure is instituted. Moreover, even though the project-based structure becomes permanent, the deployment of people throughout the matrix may be changing constantly. This is also in contrast to the more stable, permanent organization with its formal job descriptions and organizational functional statements.

One feature that the project team structure has in common with matrix but that distinguishes it from the traditional IRS structure is that the project team members are responsible to their boss in the normal chain of command and to the project manager for project work. This "multiple-boss" feature is significantly different from the more or less single chain of command in the permanent organization. It is similar to the challenge Human Resources Management and Support managers and employees face in trying to meet the needs of an executive client in another function and the needs of their own organization.

To succeed, this multiple-boss or multiple-command structure will have to be managed effectively. The Board of Directors, project managers, and others in the organization must test different ways of operating in the new design. While the Board of Directors serves as a coordinating body to focus attention on both the functional organization and the project team, project managers need to develop coordination and negotiation procedures that work best for their specific projects.

Suggestions on how to manage the organizational change inherent in operating with the project team structure are covered in section 3.5.1. However, project managers and others in the organization will have to pay particular attention to the political, technical, and cultural aspects of implementing this new style of work.

3.3.2 Selecting the Project Team

A key task of the project manager is to select project team members who are well-qualified to perform the work of the specific project. The selection process is discussed in section IV of Appendix A. In addition, the Human Resources Management and Support Skills, Knowledge, and Interests Inventory (SKII) identifies an initial list of persons who wish to serve on project teams. It provides summary information about their experience and education, self-ratings on skills common to all projects, and indications of interests and special skills. Participation in the inventory is voluntary.

The SKII profiles are stored in a Zilog data base. When the mix of skills, knowledges, and interests is identified for a specific project, the SKII can be queried for the individuals who might possess those attributes or skills. The resulting list of persons and background information can be reviewed by the Board of Directors or the selected project manager. At that point a decision can be made to select from that list or to gather additional information through a review of official personnel records or interviews. SKII does not replace official personnel records nor the procedures used for selection and promotion to fill vacancies.

Each project requires that the project manager identify the technical, interpersonal, and organizational knowledges and skills needed to accomplish the task. These elements should be defined once the Project Proposal and/or Charter are approved.

Selecting the members of a project team involves balancing two sets of requirements. People who represent different perspectives based on their functional experience are needed. But ensuring that their differing approaches and disciplines are coordinated is equally important. Selecting team members without sufficient diversity will hinder the team

from mastering the complexity of their project. Lack of coordination will interfere with the prime goal of accomplishing the project objective on schedule, within budget, and at the appropriate level of quality.

Additional considerations for project team selection can be found in sections 3.3.4 and 3.5.1.

3.3.3 Project Manager Skills

The knowledge and skills needed by the project manager differ from the skills required for day-to-day supervision and management. However, they build on solid managerial and technical skills and experience.

Some of the major differences are that the project manager must be able to operate with a high degree of ambiguity and uncertainty. The role of project manager lies outside the traditional chain of command, where the authority of functional managers is clear to the organization. Because of this new role, project managers must be able to provide leadership and to gain respect and authority based on their expertise and management skills.

Project managers need to exercise keen diagnostic and analytical skills in resolving complex organizational problems. Since their role requires integrating and coordinating the needs and contributions of more than one office, they must be able to confront different points of view, negotiate and compromise as necessary, and resolve conflict. Exercising those skills will require that project managers be assertive, persuasive, and demonstrate a broad, generalist perspective.

Generic knowledge and skills that are applicable to all projects are defined in Appendix B. They include the following:

- Project Management (includes ability to deal with uncertainty)
- Planning and Organizing in a Project Environment
- Directing, Monitoring, and Controlling Work Teams
- Leadership
- Interpersonal Skills (includes collaboration & conflict resolution)
- Diagnosis, Analysis, and Decision Making
- Communication (includes organizational communication)
- Integration (includes coordination and building lateral relations)

- Flexibility and Creativity

- Initiative

- Influence and Marketing (includes persuasion and assertiveness)

- Time-Management

- Job Knowledge (including broad knowledge of IRS and HRMS)

- Quality Improvement

Beyond these skills, there is a paramount need for the project manager to recognize that the project or innovating team differs from traditional operations, especially since it involves more uncertainty, complexity, and risk.

Specific knowledge and skills needed for individual projects must be determined on a project-by-project basis.

3.3.4 Team Member Skills

Skills and knowledge required for effective performance by project team members overlap many of those needed by the project manager, although they differ in scope.

The skills are defined in Appendix B. They include:

- Project Management (from the team member's perspective)

- Planning and Organizing

- Interpersonal Skills

- Diagnosis, Analysis, and Decision Making

- Communication

- Integration and Coordination

- Flexibility and Creativity

- Initiative

- Influence and Marketing

- Time-Management

- Job Knowledge

- Quality Improvement

- Networking

- Administrative Support

Just as in the case of the project manager, the team members will need to become knowledgeable and skilled in operating in a project team environment, balancing that with their work in the permanent, functional structure.

3.3.5 Educating and Training the Project Team

Although Human Resources Management and Support employees have experience serving on task forces and as project managers, they may have had less experience in the full scope of project management duties outlined in this document. Though the project manager may attempt to select employees who need minimal training, training should be anticipated in the project plan as a way of dealing with staff turnover, modification of the project, and the match between personnel competence and the requirements of specific tasks.

The training needed may include classroom training, self-study, and on-the-job training. Project managers will have access to a variety of resources for accomplishing this training. Potential training subjects are included in Appendix C. Training required depends on the specific project, project manager, and team members. A list of other resources can be found in Appendix D.

Since the use of major project teams is a relatively new development in IRS as a whole, it will be important to capture what each project team has learned as it gains experience with project management processes as well as its technical work. Experienced project managers and team members will be asked to share that knowledge through reports, meetings, and potential training of others.

3.3.6 Organization and Team Building

Organizing the project requires coordinating a number of resources, including people, and tools such as job aids and information systems.

The project plan should contain the basic information necessary to gain the understanding and commitment of management and clients. Collaboration on developing this plan (which defines the tasks, structures the work flow, schedules work, and identifies resources) can also help ensure that team members understand the project objectives,

scope, and success criteria. Section 3.4 treats how the project plan is developed.

One rule of thumb for organizing the project team is to select members who represent a variety of specializations or functions. This should result in a team that is small enough to allow participation by each member and large enough to ensure diversity. Organizations experienced in project management suggest that projects with more than one manager and nine members should be divided into multiple, smaller teams.

The internal organization of the team will differ from that of traditional organizations. In the typical functional organization, there are a high degree of specialization and an attempt to divide tasks cleanly. In the project organization the manager will assign work to team members according to their principal areas of expertise and will balance work among team members. However, team members will also be asked to look at the whole picture and coordinate their work with the work of others.

In order to develop a generalist perspective in team members, the project manager can assign work to small groups and periodically draw the whole group together to examine how the work on individual parts is contributing to the whole project.

Members should be able to refer to a project or charter proposal to review the objectives of the project. Goals which define specific behaviors or action steps should be documented, along with measurable criteria which allow the manager and team members to determine whether the goals have been accomplished.

Team members will be assigned specific responsibilities for accomplishing particular goals and subtasks. It may be appropriate to designate a backup person in addition to the primary person assigned to any given task, especially those on the critical path. (Critical path is described in section 3.4.1.2.)

If they are to perform effectively, team members will need more than an initial orientation to the project and generic project training. Ideally, they should have access to a central archive which serves as the historical record of all key decisions made in planning and implementing the work. They may also require a variety of references, access to data bases, and procedural guidelines.

The temporary nature of project teams and the relatively rapid movement of team members on and off the team challenge the project manager to move swiftly in building an effective team.

One important tool available to the project manager for prompt

action on this front is team building. Team building or team development is the process of uniting people in shared efforts toward a common goal in order to improve the effectiveness of the group. It is an ongoing process rather than a one-time event and begins with the first meetings between the project manager and the team members.

Typically, team building activities will focus on one or more of the following objectives:

- Set or clarify goals
- Establish, clarify, and negotiate roles
- Improve communication processes
- Improve decision-making processes
- Solve problems related to the process of working together or related to tasks
- Improve climate and morale
- Improve interpersonal skills
- Manage conflict
- Strengthen team work by increasing collaboration and decreasing unnecessary competition
- Accelerate group formation and development

How does the project manager build an effective team? Clearly, selecting team members who are well-qualified to perform the work of the project and who demonstrate adequate interpersonal skills to collaborate effectively is the first step.

The project manager may wish to start the task force with an initial meeting or series of meetings which clarify the goals of the project, identify the roles of members within the group, and establish some ground rules for working together.

Once the group is in operation the project manager should be alert to any problems in accomplishing tasks, as well as to problems in the process of working together. If group problems go unresolved, energy that would ordinarily be channeled to getting the job done will be diverted toward resolving internal group conflicts.

When problems arise that have the potential for conflict within the team, the project manager will usually find the following six-step process helpful:

(1) Recognition that a problem or opportunity exists

(2) Data gathering to ascertain causes or contributing factors

(3) Diagnosis of the causes or definition of the real problem

(4) Problem-solving and planning of changes needed

(5) Implementation of action plans

(6) Evaluation of outcome (i.e., is the problem solved without having introduced any new issues) and appropriate further action

Appendix E includes a team building checklist to guide project managers through the action steps and a description of some characteristics of an effective team.

The project manager may wish to seek the assistance of Organization Development Specialists and others who are trained to help with team building efforts. They accomplish their work by facilitating meetings or by providing suggestions on team building and conflict resolution approaches.

3.3.7 Logistical Support

The project manager will have to arrange for the availability of clerical support as well as all equipment, supplies, and meeting rooms needed by the project team. In many cases, the project team will be part-time, and so existing facilities and equipment will suffice.

Logistical arrangements will include equipment such as: word processors; a terminal to access the Human Resources Management and Support computer network; telephones; photocopy facilities; and paper supplies. Logistical support of project teams will be provided by the Office of Projects and Organizational Impacts Management, Human Resources Division.

3.4 Planning the Project

Planning for a project requires determining in advance what is to be done. Then the tasks and resources needed must be identified and their relationships (e.g., chronological) determined. The success of the plan depends strongly on the effectiveness and depth of the planning process.

In practice, project planning is an incremental and iterative process that involves constant interaction back to earlier checkpoints. Project planning may also be repeated whenever experience reveals that an assumption is invalid. A key role of the project manager is to ensure that an adequate plan is developed and then maintained. The project manager must constantly communicate with the project team to ensure that the project plan is clearly understood.

Benefits of planning include:

- Building experience
- Visibility of resource requirements
- Visibility of expectations and performance
- Visibility for exercising control
- Basis for communication

The planning process can be facilitated by the use of project management software packages. These packages can help:

- Develop, organize, and revise plans
- Plan projects of all sizes and durations
- Identify potential schedule problems
- Define staff requirements
- Understand how activities relate
- Evaluate alternative strategies
- Keep track of progress
- Adjust for unforeseen delays
- Calculate the impact of changes
- Optimize cost/time/resource trade-offs

Project management software is available for personal, mini- and mainframe computers. Software will be evaluated, selected, and procured for use throughout the Human Resources Management and Support organization.

Project management software can help plan and control a project. In fact, many of the end products discussed in section 3.4.1-5 can be generated by many software packages. Computer generated charts and graphs developed in the planning process can be used to chart the implementation of the plan. Examples of some of the items that project management software can generate include:

- Network diagrams (for determining task durations, slack, critical path, and other relationships among tasks)

- Gantt charts (for planning and scheduling)

- Histograms (for resource allocation and budgeting)

3.4.1 Developing the Detailed Work Plan

The planning process begins with a review of the project proposal, project charter, and/or other documentation related to the project. These documents, discussed in section 3.1, identify the project's objectives, client(s), deliverables, estimated resources and time schedule, assumptions, constraints, and other information affecting the project plan. Developing a detailed work plan is the process of converting this general information into specific tasks, resource estimates, milestone schedules, and budgets.

Since the planning process is based on judgments, estimates, and predictions rather than known facts, the assumptions underlying the planning process should be made explicit. Having the team base their planning on clearly stated and documented assumptions can:

- facilitate the entire planning process when team members base their planning on the same criteria

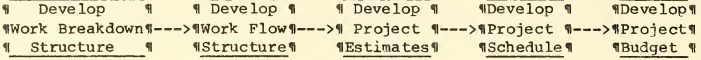
- facilitate approval of the project plan when assumptions are communicated to the decision makers

- provide the basis for revising plans and obtaining subsequent approval when assumptions prove invalid

The detailed work plan identifies and quantifies the tasks to be done in a project. The identification process yields a comprehensive list of assignable tasks, each of which will produce a specific, tangible end-product. The quantification process estimates the work effort and resources required to perform the identified tasks. The following sections describe a proven approach to planning that provides a sound basis for managing and controlling a project. The description is an overview of the approach. It does not provide enough information for

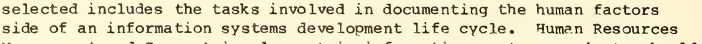
most people to be able to accomplish the steps without further training or experience. Project management training is available to learn how to use these techniques effectively.

The approach consists of the following five steps:



In order to illustrate the project planning process, one example has been selected to trace through the various stages. The example selected includes the tasks involved in documenting the human factors side of an information systems development life cycle. Human Resources Management and Support involvement in information systems projects should focus on the work required to develop these products and integrate them with the products developed in the technical side of the system development life cycle. Appendix F shows first the technical system documentation and then the human factors documentation used in the example.

3.4.1.1 Develop Work Breakdown Structure (WBS)



After the project documentation has been reviewed, the first and perhaps most crucial step in the planning process is preparing a **Work Breakdown Structure.** A Work Breakdown Structure (WBS) identifies the specific tasks required to accomplish the project described in the project proposal and/or charter. **A good WBS is the basis for all subsequent steps in the process.** The tasks identified in the WBS will be used to create the work flow structure, the resource estimate which will be developed for each WBS task, a schedule for each WBS task, and a budget from the estimates of each WBS task.

A WBS is developed by thinking the project through, moving from general to more specific tasks and from wholes to parts. Together the project manager and the team members begin by looking at broad fronts on which action must occur or categories of tasks that must be undertaken to accomplish their project. These broad fronts and categories are then broken down into smaller and more particular tasks or components.

Some identification scheme, should be devised for organizing the WBS with each task given a unique identifier and narrative description. The following is one approach for building a WBS:

- Divide the total work of the project into major fronts or categories.

- Subdivide the major groups into tasks.

- Subdivide the tasks into subtasks.

- Continue subdividing only to the level of detail necessary to control the project without creating an excessive administrative burden.

Using the example of a human factors project supporting a new automated system the following WBS might result:

1.0 Major Category example ---> Conduct Organizational Impact Analysis

1.1 Group example ---> Conduct Preliminary Analysis

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.
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5.0 Major Category example ---> Develop Work System Specification

5.1 Group example ---> Develop and Document New Work System

5.1.5 Task example ---> Develop Organization Structure

5.1.5.1 Subtask example ---> Develop Organization Charts

5.1.5.2 Subtask example ---> Develop Staffing Patterns

A more detailed WBS for this example can be found in Appendix G.

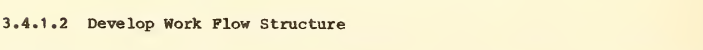
In developing the WBS, the work may be subdivided into as many stages as necessary to provide tasks of the desired size. The lowest level of subdivision should be small enough to permit control and visibility, without creating an unwieldy administrative burden. Also, in order to make control easier, related tasks should be subdivided and grouped together. The work to be specified in each major group should be subdivided so that each task is placed in one and only one subdivision. For example, task 5.1.5.4, Classify Positions, in Appendix G should not also be included as a task under 10.0 Develop Implementation Plan.

The "80-hour rule" should be used for planning, estimating, and controlling the work assignments of the WBS. According to this rule, the lowest level of the WBS consists of tasks, each requiring no more than 80 staff-hours to complete. The project estimate then becomes the summation of a set of estimates of 80 hours or less. The project can then be scheduled and controlled by these easily measurable pieces. The reason for using 80 hours or less for each task is to provide close control over the project. Finding out that a project is going to overrun its schedule or budget at a point when corrective action can still be taken can be invaluable.

The following considerations should help in developing a Work Breakdown Schedule:

- It is not necessary to extend the structure to the same number of levels for all tasks. (In Appendix G some parts of the structure have two levels while others have four.)
- Use a top down approach, moving from the general to the specific.
- Start with project phases, and then break them into groups, tasks, and subtasks.
- Although a WBS may be somewhat less definite about later tasks, it should always be detailed and precise for the next phase of the project.
- The WBS can be refined and made more precise for later phases as the project proceeds from one phase to the next.

3.4.1.2 Develop Work Flow Structure



Once the WBS tasks have been grouped and divided and the time they will require roughly estimated, the next step is identifying the chronological and logical relationships among tasks. This yields a WBS network and aids in determining the Critical Path of the project. The Critical Path Method (CPM) of project scheduling is a technique for determining which tasks are the most important to manage if the project is to keep on schedule. CPM is taught in project management courses.

The following are the steps in developing a WBS network and determining the Critical Path:

- Identify how the tasks follow and depend on each other (i.e., which tasks must be completed before other tasks can begin; in the example below, task 5.1.5.1 cannot start until both tasks 5.1.3 and 5.1.4 are completed).

  The following is an example of task sequence and dependence relationships (This example is also shown in Appendix H):

WBS Task	Depends Upon	Duration
5.1.1	-	4 wks
5.1.2	5.1.1	2
5.1.3	5.1.2	2
5.1.4	5.1.2	1
5.1.5.1	5.1.3, 5.1.4	1
5.1.5.2	5.1.5.1	1
5.1.5.3	5.1.5.2	3
5.1.5.4	5.1.5.3	3
5.1.6	5.1.3, 5.1.4	6
5.2	5.1.6	4
5.3	5.1.5.4, 5.2	6

  Duration is the length of time for completion from beginning to ending date. It is not the number of staff-weeks which may be a larger number, if more than one person is assigned to a task, or a smaller number, if a person is only working part-time on a task.

  Note that only the lowest level tasks are used. Tasks 5.1 and 5.1.5 are not listed because they are subdivided into other tasks.

  Which tasks come before others can be determined by creating a table like the one above or by entering each task on an index card, spreading the cards on a table, and moving them around until sequence and precedence are clear; the latter approach allows moving directly to the next step of creating a network.

- Next create a network connecting the tasks together to show the sequence and dependence relationships. Appendix H shows a completed network with the task number inside the circles and durations outside the circle.

- Next identify the set of tasks which determine the shortest time the project can be completed. (The result is a Critical Path Method (CPM) network.) This is accomplished by either working forward or backward through the network to determine the earliest and latest time each task can begin or end. The steps in this process include:

  Working forward using the network pictured in Appendix H, task 5.1.1 can begin in week 1 of the project. Since this task takes four weeks, task 5.1.2 cannot begin earlier than week 5. Since task 5.1.2 takes two weeks, tasks 5.1.3 and 5.1.4 cannot begin until week 7. Working through the rest of the network yields the **earliest start time** (EST) for each task shown in the "EST" column of the last table in Appendix H.

  Once the ESTs are determined, the **latest start time** (LST) for each task is computed by working backward through the network. If the ESTs are computed correctly, the LST for the last task (5.3) is the same as its EST (week 19). Working backward, task 5.2 must begin no later than week 15, if task 5.3 is to begin in week 19. Therefore, the LST for task 5.2 is also the same as its EST. On the other hand, task 5.1.5.4 (EST is week 14; duration is 3 weeks) could begin as late as week 16 without affecting the week 19 start for task 5.3. Therefore, the LST for task 5.1.5.4 is week 16, two weeks later than its EST. Working through the rest of the network yields the LSTs shown in Appendix H.

  The next step is to compute the **slack time** for each task. Slack time is simply the difference between the EST and LST for each task. The last table in Appendix H shows the slack time, if any, for each task. Tasks with an identical EST and LST have no slack (indicated by a dash (-)). Tasks with slack time allow the project manager some leeway in scheduling them without affecting the project completion date. **Those tasks with no slack time are on the critical path.** Any time slippage in those tasks will affect the project completion date unless corrective action is taken. These tasks will then require the most careful supervision by the project manager as the project advances.

3.4.1.3 Develop Project Estimates

Once the relationships among the WBS tasks have been identified and the critical path has been determined, the next step is to develop **project estimates.** (Estimates of task duration would already have been made in order to determine the critical path.)

One of the major tasks associated with project planning is estimating the effort required to complete the remaining phases, steps, and activities. A systematic approach can provide a reasonable framework for the project estimating process. Estimates are needed at several crucial points in the project. No meaningful project plan can be without them. They form a basis for approving the project, committing resources, tracking progress, controlling costs, and conducting cost-benefit analysis. When closely tracked and recorded, they also can improve estimates on future projects.

A project estimate is a statement of both the time and the resources **needed to produce a particular end-product.** Estimating requires knowledge of the project objectives, the size and complexity of the project, the experience of the staff, results of past projects, and other pertinent factors.

The following factors should be considered when estimating a project:

- Estimating the size of the job to be done is probably one of the toughest tasks a manager faces.

- An estimate is a judgment of what a job will cost in terms of staff years, machine hours, and other resources. It is an estimate of how resources will be expended in order to get the job done. When translated into money and time, the estimate is called a budget.

- Estimating should be a well-documented, formal process, based upon sound and explicit assumptions which derive from or are consistent with those in the Project Proposal or Charter. The estimating process should be kept relatively simple and be based upon objective criteria. **An estimate is merely the sum of many more or less educated guesses,** which makes it more accurate than a single or naive guess. As such, estimating is a cumulative process that refines guesses as the project progresses. The goal is to be as accurate as possible.

Because of the complex nature of project management, estimating requires constant reconsideration of the various elements that compose the project. Factors such as time of year, personnel time off, training time, task dependencies, overtime, attrition, start up time, and late additions to the team, support functions, user approval, learning curve,

travel, equipment delivery slippage, skills-mix required, management time, and assumptions should be considered.

Before beginning the estimating process, the following issues should be considered:

- When estimating labor and flow time for each task/activity, always consider: the complexity, problems, risks, and unknowns; quality and quantity of expected performance; and type and skill of personnel required.

- The key to successful estimating is understanding the problem.

- Good managers are good measurers which means they measure the right things.

The following is one approach to the estimating process:

- First list WBS tasks at the most detailed level available to be performed on worksheets.

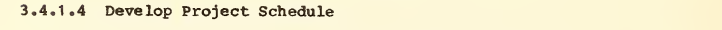
- Next estimate the resources required for each task. Include staff time, travel funds, computer time, and any other resource which might exceed 5% of the total project cost.

- Convert appropriate resources to dollars by applying average salary rates, machine time rates, etc. This is the base cost.

- Write down the assumptions on which your estimate is based.

- As the project progresses, reestimate all or a portion of the job as better information is developed.

3.4.1.4 Develop Project Schedule



Once the estimating process has been completed the next step is to **schedule the work tasks** identified in the WBS. In project management, scheduling entails far more than the timing and sequence of tasks.

Scheduling is:

- the assignment of calendar time to WBS tasks

- a determination of the resource levels necessary for execution

- the allocation of resources to the project tasks

The schedule developed must be continually refined to account for the growth of experience and improvement of information during the project.

Scheduling is the interaction of many planning variables such as time, cost, task flows, and teams being subjected to continual change.

The scheduling process aims at the development of **milestone schedules** and **resource allocation schedules.**

Milestone schedules are:

- Directly related to the WBS

- Natural outgrowths of CPM Networks

- Relate tasks to calendar time

- Preliminary, assuming required resources are available

- Reflect resource availability constraints

- Reflect project tasks and deliverables

Milestone schedules are developed by listing each task and determining the responsible organization/person and the estimated start and completion dates. They may also include actual start and completion dates and a method for displaying status. They may be presented in the form of a table with columns for each data element, a Gantt chart, or other methods that make communication and project control easier.

Another useful aid for project scheduling is to create a **resource allocation schedule.** Resource allocation schedules provide a vehicle for distributing resources, including staff, to the WBS tasks, establishing start and completion dates for staff and tasks, and determining **the point in time** resources such as facilities, clerical needs, computers, and user liaison personnel will be needed. Resource allocation schedules can take many forms. In most cases, bar charts are used, with calendar time shown horizontally and resources displayed vertically. Any kind of resources can be included (e.g., staff, machines, and facilities).

The steps for completing a resource allocation sheet are:

- Enter on the sheet the resource (people by name or a designated organization).

- Now, look at the network and project estimates developed earlier to determine, for each task, what resources are needed and when they are needed.

- Based on resource availability, assign resources by blocking out, on the resources allocation schedule, their start and stop times and, particularly in the case of staff, the percentage of their time required. (This will allow scheduling of a person to more than one task during a time period, if they are not working full time on a single task.)

In addition, detailed resource allocation schedules are a useful tool for:

- Identifying resources needed for each task.

- Identifying candidates and their availability and obtaining commitments in writing.

- Matching task needs and resource availability.

Standard manual forms or computer software formats can be valuable aids in developing milestone schedules and resource allocation schedules.

3.4.1.5 **Develop Project Budget**

After the tasks in the WBS have been planned, estimated, and scheduled, the next step is **budgeting funds for the project.** In most instances the overall budget for a project will already have been established by the Board of Directors. The project team must then provide detailed cost figures and justifications to support the project budget. All tasks and costs must be included in the budget. By closely monitoring and controlling the project budget, a project manager can greatly improve the likelihood that the project will succeed.

Budgeting converts the planned use of resources into financial information. Budgets should be directly associated with project tasks and scheduled decision points. Project budgets can only be closely controlled and monitored if they closely parallel the decision points.

A budget can be developed simply by totalling the results of the earlier estimating process. How detailed the budget figures must be depends on the level of detail required for control. Forms or computer software can facilitate budget development.

Successful project managers do not commit to a schedule or budget that they know they cannot meet.

3.4.1.6 Conclusion

Once the five project planning steps are completed, the project plan is documented and assembled. If a good project management software package is available, the entire plan can be entered and maintained on computer. After documentation, the plan will be submitted to the Board of Directors for approval as mentioned in section V of Appendix A.

The process described above may appear overly complicated and unnecessary for most Human Resources Management and Support projects. However, as noted earlier, a successful project depends on good planning. The process can easily be tailored to match projects of any size. The level of detail in the work breakdown structure can vary. Small projects may only have a dozen WBS tasks. The Critical Path Method Network may not be necessary for small projects; moving directly from the WBS (step one) to estimating (step 3) may be appropriate.

3.4.2 Action Plan for Sponsors

Typically, the detailed project plan will contain more information than the Board of Directors, clients, and other interested parties need or want to monitor the project. Often a summary plan suffices for use by these parties.

A typical summary plan might include:

- Brief overview and project background
- Project objectives and scope
- Description of deliverables
- Responsible individuals and organizations (key persons)
- Progress review schedule

- Budget and cost estimates (summary level)

- Key Milestones (using a higher level of the work breakdown structure)

- Decision points (go or no-go)

3.4.3 Planning in an Uncertain Environment

The traditional planning model for the typical project emphasizes deadlines, budgets, and contracts. This approach is reinforced in employees' private, as well as their organizational, lives. In recent history (1945-1970), economic stability has prevailed. This is part of the cultural background of most adults today and is one source of peoples' instincts about planning. However, events of the 1970's and 1980's have begun to affect the traditional norms in this area. As someone has said, "Nothing stands still long enough anymore to draw a bead on it." Adjusting to this reality is perhaps most difficult in a large, complex, traditional organization.

In particular, this shift presents a challenge to project managers. Time-lags in completing a project conflict with life cycles of products and processes. If project managers cannot be flexible in making mid-stream revisions of project activities, directions, and even project objectives, a project's outcomes may be irrelevant by the time the project is finished. Even when the effect of rapid change in organizations, driven by changes in the economy and in technology, is not as severe as this, it remains an ever-present force that must be faced. Here are some suggestions:

- The project manager should maintain close relationships with key players: the client for the project; the sponsor within the project manager's organization; and the contractors (when used). Ask them to communicate changes they see on the horizon in order to get early warning of new developments.

- Know the project's resources. Find out where the slack is. Where are the pressure points? Use tools such as critical path analysis and decision trees. Line up back-up staff in key specialties. Project work is labor-intensive, and the loss of a key skill, even temporarily, can be critical.

- Determine potential pitfalls and develop back-up strategies to deal with them. Then monitor and reevaluate the situation during the course of the project as circumstances change. For example, preliminary work can be accomplished on contracting out the development of a publication or a piece of software, to be

followed through if necessary. Similarly, an agreement can be made with another manager to use an employee on a detail with relatively short notice, if he or she is needed.

For further suggestions, including a formalized procedure for dealing with contingencies, see Section 3.5.3, Controlling Changes.

3.5 Executing the Plan

3.5.1 Day-To-Day Management Issues

After the project plan is completed and approved, the project team will begin the process of executing the plan. The project manager will assign work to team members, monitor progress, direct activities, and take necessary actions to keep the project on track. During the process of executing the project, the project manager will confront problems and issues. This section of the guide discusses some of these.

While the project team approach makes a lot of sense, putting it into actual practice is not easy. People have a tendency to polarize issues, resist exploring ideas thoroughly, mistrust each other's behavior, focus on trying to protect their own "home" function, overemphasize simplified criteria of success, work too much on day-to-day operations and short-term planning, engage in routine decisions rather than focusing on long-range, riskier decisions, and emphasize individual survival more than integration of effort.

In addition, the team approach is often faulted for not providing individuals enough opportunity for recognition in their own functional organizations for their outside performance on a team. Individuals often seek to be personally identified with a particular accomplishment and are not satisfied to know that their group (and not they) obtained the reward.

Recognizing the potential problems associated with project management is certainly one step towards reducing the likelihood that they will occur. However, some problems are inevitable given the nature of a project management environment. The effective project manager will confront these issues and not ignore or avoid them. There is no quick fix for these concerns, but while long-term efforts are important, there is much that a project manager can do on a daily basis to create a positive climate for their team members.

Ambiguity and Stress

There are several potential problems directly related to project team members, which may arise during the course of a project. First, a project team is probably not the place for those who need security and stability

in their work. While the flexibility and fluidity of a project team is vital to its success, it can create considerable confusion, stress, and conflict for those individuals who lack a tolerance for ambiguity. The project team does not typically have a formalized structure, which may contribute to a lack of clarity among team members regarding job definitions, authority relationships, and lines of communication. Thus, it is important that these factors be considered when choosing team members. Prospective members should be advised about the often ambiguous nature of project work, and project managers should attempt to steer those who need structured, stable work environments away from team membership.

As mentioned earlier, project managers should strive to ensure that team members understand what is expected of them, perhaps even to the extent of using written work authorizations for specific tasks to be performed. These work authorizations should be tied to milestones/activities in the project plan.

Team members may experience confusion about who is really their boss, and may not be sure who will be evaluating their work on a project. It is important that the evaluation system be clearly defined for team members and the project manager, to avoid the perception that one is serving two masters at once.

Career Development

If the project team approach is used frequently, there may be a lack of systematic career development for those who participate frequently. Members may view their assignments to diverse projects as random and unplanned, and so not related to their personal and/or career development. The team member's permanent manager should provide for regular discussions regarding career development, in order to insure thoughtful and perhaps more beneficial project assignments for the employee.

In the same vein, project managers should consider selecting employees with a range of skill levels, so that more experienced people can help to develop new skills in the less experienced. If only the most highly skilled people are repeatedly selected for project teams, their knowledge will not be transferred to others in the organization.

Finally, team members may experience some anxiety related to the eventual phase-out of the project team. As the team's task nears completion, members may not be entirely sure of what lies ahead for them. Two resulting tendencies are to close out the project early, thereby eliminating the uncertainty, or to resist ending the project by dragging out or adding tasks. As mentioned above, the employee's functional manager can help ease this uncertainty by discussing future plans with the employee before the project ends.

Intergroup Conflict

The project team approach is open to conflicts both internally and between the team and other groups. Often a project manager has to work across functional lines to coordinate schedules and resource needs without any explicit or formal agreements about the nature of his or her relationships with the functional managers.

As described in section 3.1, Initiating a Project, it is essential that all such agreements be made explicit so that people know who is to do what under various circumstances. In extreme situations, it may be necessary to review the original charter and project plan with the Board of Directors to clarify and refine roles and expectations.

Project teams may also experience low levels of team member loyalty, particularly if the organization uses project management frequently and individuals find themselves moving from team to team. Team members may experience divided loyalty between their permanent home and the project team of which they are currently members. By emphasizing the broad, HRMS-goals of the project to team members, the project manager may be able to increase team members' sense of loyalty to the project.

In addition to potential conflict between groups, a manager may be faced with conflict among team members. Instead of trying to stamp out conflict as bad and disloyal, managers must learn how to manage it so that its constructive aspects are emphasized and the destructive aspects minimized. Managers have to learn how to bring groups together and to use available resources (Organizational Development Specialists, the Office of Project Management, or outside consultants) to help them understand the discrepancy between their and others' views.

Decision Making

One danger in the project team approach is that some functional specialists may believe they have to clear all issues with their own functional bosses before agreeing to project-related decisions. In effect, their functional bosses are given a de facto veto over internal project decisions. It is important that functional specialists go outside the project team only for those issues which clearly require functional input.

Complete managerial autonomy is not a feature of the project team approach. Managers in traditional organizations are accustomed to making decisions on their own, usually with the aid of policy and procedure manuals which spell out, in considerable detail, the authority of each manager.

By contrast, in the team approach, most decisions require several people to participate, sometimes formally, sometimes informally. Unilateral decision making is virtually nonexistent. To a manager accustomed to clear-cut lines of authority, this team decision-making can be quite frustrating. Furthermore, holding regular progress reviews with higher levels of management may give the impression that top management is making all the decisions.

Complicating matters further, this rather involved decision-making process takes place in a fast-paced, change-oriented environment. As a result, a great deal of time is spent in meetings at which decisions are made or reviewed. This, too, can cause frustrations for individual team members who feel that they do not have enough time for their work or that they are wasting time on mere processes.

Often many decisions will involve detailed matters with which only one or two people are regularly conversant. Yet all team members will be constrained to listen to discussions of these issues and even be expected to participate in the discussion and influence the choice.

The best argument in favor of the participative, group-based, decision-making process is the high caliber of the resulting decisions and the high degree of individual commitment toward carrying out the decisions in an effective manner.

However, because the whole idea of project team organization is unfamiliar to many managers, it is understandable that they may confuse it with processes such as group decision making. There is nothing sacred about group decisions, and it is often not sensible to have all team members involved all the time. Only those who have information relevant to a decision should be called upon. Group input must be kept in perspective: as often as necessary and as little as possible.

Efficiency and Competition for Resources

Another problem may arise when some individuals participate on several teams at the same time. Their multiple participation is required because, in certain cases, they are the only ones who can provide a specific input to several teams. The result is competition for resources and a tendency for every project to be a number-one priority. Individual project managers must resolve these problems by working with other project managers in setting common priorities, making sure the right people are on the teams, and encouraging a spirit of cooperation among team members from different functions.

Finally, while project teams are generally considered to be highly effective, they can be somewhat inefficient due to the high cost of communication across the organization and within the teams. A great deal of

time may be spent discussing work, rather than actually producing results. Because no formal structure exists within the project team, diffusing information takes more time. Addressing a complex problem requires that the team talk a lot; that is how the members combine their knowledge to develop new ideas. Given this danger of inefficiency, a project manager's communication skills will be put to the test keeping information flowing among team members and between the team and other parts of the organization.

Conclusion

Project managers face a number of issues and day-to-day concerns which are very different from those managers in a more traditional environment deal with. Project managers must be able to balance the need for team flexibility and fluidity with the need for thorough planning, delegating, and tracking of project progress. Additionally, the project manager must be sensitive to potential conflicts and work to manage them productively, and not simply ignore or attempt to smooth over problems. Finally, the project manager must recognize that project team members will often have needs and concerns which are different from employees in a traditional organization. Project managers must be willing to explore alternative approaches to managing these employee needs and concerns.

3.5.2 Controlling the Project

The project manager is responsible for ensuring that the project plan is implemented. This active monitoring process is known as **project control. Project control determines whether project performance is in line with project plans.** These projections - deliverables, schedules, and resources - have all been clearly identified in the planning process. The project manager controls the outcome of all the project activities by reviewing and monitoring actual performance against planned performance.

Project control is designed to permit corrective action during the project. The manager should identify the deviations (or potential deviations) from the project plan and exercise his/her authority to correct the problem. In particular, the project manager is responsible for regulating the Critical Path, which is an outgrowth of the Work Breakdown Structure, and for keeping the project within cost and time schedules.

Project control involves an ongoing evaluation of the adequacy of the project organization and progress against the plan in meeting ultimate project objectives.

Controlling a project requires:

- Monitoring the individual progress of each team member on specific tasks
- Scheduling and conducting project team meetings
- Determining and reporting project status
- Scheduling and conducting review meetings with users, management, and the Board of Directors
- Controlling changes that must be made to the planned end product
- Determining the impact of end product changes and variances from planned progress
- Modifying schedules and staffing as appropriate to meet scheduled completion dates
- Evaluating expenditures of funds in terms of work accomplished and time
- Evaluating staffing utilization and individual work progress and making adjustments as necessary
- Determining if project objectives are being met as the project progresses

Various methods are available for controlling projects. The focus of the control activity must necessarily be on the most difficult and highest risk activities in the current phase or step.

Once tasks have been assigned and work begun, quantitative data on efforts expended must be recorded, in order to properly measure status. Determining status is not merely timekeeping. It includes the quality of completed work produced in proportion to the effort reported. Determining status is basically a matter of assuring that each completed task has produced a quality end-product and then comparing (on the basis of planned time and costs) the actually completed tasks with the tasks planned to be completed to date.

Milestone schedules developed during the planning process are one means of project control. Milestones typically display activities, due dates, responsible functions, and other pertinent data. Scheduled versus actual data should be captured. An example of an automated milestone tracking system is the Human Resources Management and Support Network Project Tracking System.

The project manager should continually scan the milestone schedules to determine areas or tasks that are behind, on, or ahead of schedule. Actual accomplishments, the timeframes required, and the resources expended can all be linked to the milestones. Setting up a hierarchy of milestones - many small tasks may comprise a larger activity - may help focus attention on larger chunks of the project and avoid getting caught up in too much detail.

Milestones can be used as input to project status reports. These reports should be in summary form and should contain descriptions of tasks completed, next tasks, outstanding problems, potential solutions, and actual progress compared to plan.

Another useful control tool is the Project File. This is a centralized collection point and repository for all administrative records related to the project. The file should be initiated and maintained by the project team and contain:

- The project proposal
- The project charter
- Project plans and schedules
- Work authorizations
- Status, progress, or performance reports
- Minutes of meetings and reviews
- Correspondence
- Worksheets and other analysis
- Change requests and approvals/rejections
- Project performance data
- Problem reports
- Locations of major project documents

A properly constructed and maintained project file will assist the project manager in controlling the project and in facilitating the implementation of changes. It will also be a critical archival resource to future project teams and the Board of Directors.

3.5.3 Controlling Changes

How well changes to the plan are managed will depend, in large measure, on good planning. The need to plan for change must be considered before a project is attempted. Given any project that spans more than a couple of weeks, change can be expected. Examples of the kinds of changes include requirements changes, design changes, technological changes, social changes, people changes, and corrections.

What is important about changes is that they be controlled, not eliminated. Changes can occur in many different ways due to the dynamic nature of projects. They can occur during the planning, development, implementation, or operational phases of a project.

One vehicle for controlling change is a **change control system.** This system can be composed of a change request form and a **change control board.**

The change request form documents proposed significant changes to the approved plan that results from new information or review of existing efforts. Anyone -- a team member, the Board of Directors, or the client, could propose a change. At a minimum, the request form should contain:

- A summary of the proposed change
- The impact of the change on other system requirements
- The impact of the change on the project budget
- The impact of the change on the schedule
- The impact of the change on other priorities
- A recommendation for or against adoption

The disposition or authorization of a change is the responsibility of the Change Control Board (CCB). The board could consist of:

- The project manager
- A representative of a Human Resources Management and Support organization with a stake in the project's outcome
- A client representative
- The Board of Directors liaison member (mentioned in section 3.1)

Each project plan should describe the exact composition of the CCB and their method of operation. The plan should describe the types of changes that the CCB would review and authorize, the stages or phases where changes could be introduced to minimize disruptions, times and places for CCB meetings, and other necessary information.

The CCB serves to prevent changes that are not in the best interest of the project. It must also plan, organize, and expedite changes that are good or necessary for the project.

The CCB will serve as a screening device for all significant deviations or changes from the initial project charter: that is, changes to the schedule, resource requirements, end product, and the like. Items or events that may contribute to a major change could be brought before this board and reviewed for impact on the project. If the change is controllable, the item would be adopted. If the change is not controllable, the impact would be assessed and the expected results provided to all interested parties.

The CCB determines whether the change requires revising and/or renegotiating written work authorizations (see above. 3.5.1) with the functional managers. The Project Manager must ensure that all approved changes are entered into the project's schedule and budget on its tracking system and that the "ripple effect" of changes are taken into account. Some project manager software programs will automatically recalculate and adjust for this "ripple effect."

Certain changes are so significant that approval should be obtained from the Board of Directors (BoD). The BoD Liaison (discussed in section 3.1) should determine which changes are so major that they need to be approved by the full BoD. The BoD liaison should then schedule a meeting between the BoD and the CCB to discuss and resolve the change issue.

3.6 Reviewing and Reporting Progress

Project reviews are effective control mechanisms. **A project review is used to determine the current status of a given situation, by comparing actual with plan figures, monitoring progress, and the like.** Problems need to be identified and someone assigned responsibility for solving the problem. Recommendations for improvement should be compiled, and a report of the findings provided to concerned parties. Communication with all people involved is essential. Educating all people involved as to the purpose of the review and the findings can help avoid future misunderstandings.

Examples, of the types, frequency, and nature of reviews that the project manager may wish to use are as follows:

- Frequent team reviews to discuss problems, meeting of milestones, and status of individual assignments.

- Periodic reviews with clients and affected Human Resources Management and Support offices to discuss status, resource usage, major problems, personnel performance, and impact of new external events.

- Periodic reviews with the Board of Directors to discuss major issues and problems, major changes to the original plan, significant accomplishments, and approvals to proceed. The project plan should identify the major go/no-go decisions that the Board would be expected to make.

- Ad hoc meetings with clients, support functions, and any other organizations whenever necessary to obtain information or to resolve problems.

Whenever reviews are conducted, they should focus on started and completed activities and exceptions to planned progress. Action items should be identified and documented; also who will resolve the issue and by when should be decided. The project manager should follow up on these action items to ensure that they get done. Each subsequent meeting of those participating in a meeting should begin with a discussion of the action items that were identified in the previous meeting.

3.7 Assessing and Rewarding Performance

Both the project manager and the team members' permanent supervisors will be involved in assessing and rewarding performance of the team. The project manager will provide input to written performance appraisals completed by the permanent supervisor and recommend any appropriate formal performance awards.

The project manager will also assume the day-to-day supervisory tasks of providing objective performance feedback to team members and giving informal rewards such as recognition at team meetings and increased visibility on the project.

Motivating effective performance depends upon performance appraisals that are perceived to be objective, fair, and that reflect observable behavior and outputs. It also depends on rewards that are viewed as being in balance with the skills and effort expended. Six elements are essential to appraisal and reward systems:

(1) Clear expectations

(2) Clear and measurable standards of performance

(3) Consistent, regular, and fair measurement of instances of performance against those standards

(4) Clear, prompt, and regular feedback on the findings of such measurements

(5) A variety of timely rewards for performance that meets or exceeds standards

(6) **Shared responsibility** among superiors, subordinates, and peers in the operation of the above five elements, to a degree that is appropriate to the individuals and groups whose performance is being assessed

While all six of these elements are important for motivation, their implementation will vary with the project depending on length, size, extent of full-time vs. part-time involvement, and the nature of the project. Failure of any of these elements adversely affects motivation and may, indeed, have the opposite effect of demotivating people.

Cross-functional project teams are a new direction for Human Resources Management and Support, a pivotal element in its transition. Joining and effectively participating in these teams require a willingness to accept a higher degree of risk and uncertainty than people may have been used to. Using a project approach and giving greater emphasis to group processes and interactions also represent ways of working that will be new to many people. How team members feel about the way in which their performance was assessed and rewarded will affect their willingness to participate in such endeavors in the future and also the willingness of others to join project teams.

The flexibility that characterizes the project management system -- its openness to revision, change of direction, and iterative planning and design -- should also be reflected in the way in which performance is assessed. Renegotiation and revision of standards, measurements, feedback mechanisms, and rewards should not be regarded negatively. Pretending to meet standards that are no longer relevant to the way a project is developing or adhering to measurements that do not reflect performance adequately, however sensible they originally seemed, will undermine the entire project management system.

Expectations are overall anticipations of outcomes. They flow from the project charter and the project proposal. Their clarity and concreteness depend upon the clarity and concreteness of the charter and the project proposal.

The initial meetings of the project team should focus on identifying

the project objectives and generating expectations to address them. Ideally, the team-building that should accompany the start-up of new project teams should focus on generating expectations of how the team will work together (for example, everyone is expected to participate in team meetings and comments on ideas are deferred until the brainstorming is ended). They should also focus on priority tasks. This exercise is a strong, first step toward forging team identity and instilling a collaborative attitude.

These expectations also provide a framework for determining and applying performance standards. The performance standards describe specific, measurable behaviors such as target dates and criteria for acceptable quality of work. Once major expectations have been developed, they should be submitted to the Board of Directors for their approval, along with any project team expectations of the Board itself. Securing approval may require negotiation.

Among the elements to be addressed in the group and individual standards are:

- Distinct, complementary, primary, and secondary responsibilities of the project manager and each team member for the stages of work set forth in the project plan

- Timeliness of delivery of group and individual work products

- Responsibilities for the project budget as a whole and for whatever portions are allotted to individuals

- Levels of professional expertise and product quality (for example, application of state-of-the art knowledge of telecommunications, and briefings which consistently meet their intended purpose)

- Distinct and shared responsibilities for group processes (e.g., briefings, meetings, narrative reports, feedback)

Individual standards should be drafted by each individual, agreed upon with the project manager (or, in the case of the project manager, with the Board of Directors), and then shared with the group. Group standards should be developed in group meetings.

A general rule is that performance feedback should be consistent (across individual assessments and among individuals being assessed on the same standards), that it should be given promptly after the performance being measured, and occur on some regular basis.

Feedback on group performance should be given to the group. Positive feedback on individual performance may be given individually and, depending on the dynamics established in the group, may also be given in a group. As

a general rule, negative feedback should be given privately to the individual concerned.

Feedback should always refer to standards against which performance was measured and to the group's or the individual's agreement to be judged by that standard. It should focus on observable behavior -- not on good or bad attitudes. For example, instead of saying "You don't seem to have the right team spirit," say "You have not given A, B, or C the deliverable or the information you agreed to." If appropriate, employees should be encouraged to identify events that occurred which had a positive or negative effect on task accomplishment.

Face-to-face feedback of performance assessments should be complemented by some succinct, written record composed by the project manager alone or jointly with the individual concerned (similar to a supervisor's drop file). Accumulating this documentary record is the responsibility of the project manager. At key times for overall assessment of performance (e.g., when a member leaves the team; at the termination of a project; at individuals' rating periods), this record will be furnished to the individual's supervisor of record by memorandum.

Negative performance should not be discussed for the first time when reports of performance are being documented for submission to the supervisor of record. Written evaluations should not surprise team members, but should, for the most part, summarize regular and ongoing feedback on performance. When performance feedback is given, negative feedback should be balanced by positive whenever possible; positive feedback can stand on its own. The timing of feedback is critical to its having an impact on performance. It should follow performance as soon as possible.

Rewarding effective performance has, historically, been a method used by managers to recognize prior accomplishments and to motivate future effort. Rewarding behavior also promotes risk taking and newly acquired behaviors on the part of the employee and group. Needless to say, performance feedback and performance rewards should dovetail.

There is a general perception among employees that efforts invested in task force performance or details usually go unrecognized since they do not constitute the individual's real job. Frequently, employees assume that membership in a task force or detail not supervised by their regular manager will not carry as much weight in a performance appraisal as performance in their home job. Performance away from the home position needs to be evaluated and rewarded in fair proportion to the time spent in the home position.

The rewards associated with performance need to be tailored to the specific situations that exist for that individual. Since cross-divisional project team members may have a unique set of responsibilities, evaluation and rewards should be commensurate with the task requirements.

Traditional reward systems (cash awards, certificates of recognition, etc.) are only a few of those that might be used by the project manager. Other opportunities to reward behavior include such items as:

- Promotion of public speaking and presentation opportunities
- Publicity in a newsletter
- Expedited access to Human Resources Management and Support executives
- Increased opportunities for work involving travel
- Opportunities to conduct briefing and training sessions for managers and employees

Group, as opposed to individual rewards, are an additional alternative. The primary element in group rewards is to allow the group members to decide the distribution of the reward among themselves. Frequently, group members can identify rewards within legal and procedural bounds that are most meaningful to them.

Rewards and recognition provide a positive expression of appreciation on the part of the organization and the project manager. This type of feedback to the employee or group of employees has the most positive consequences for performance when the reward is given in a timely fashion, is perceived as being justified, and is meaningful to the person or people involved.

3.8 Terminating the Project

Normally, a project will end when its objectives have been met, but the project manager or Board of Directors may determine at any time that a project should be cancelled before its completion. (Examples of reasons for cancelling a project before completion include actual or predicted, severe schedule or budget overruns; determination that the project is no longer needed; and project objectives, assumptions, or plans are no longer valid.) In either case, the decision to terminate a project will be made by the Board of Directors. Prior to the Board of Directors' decision, the project team should prepare a paper describing the reasons for terminating the project.

When a project is terminated after completion, the transition from active development to a semi- or inactive maintenance phase requires that responsibility for the operation and maintenance of the end-product or service produced be passed on. The usual recipient of the deliverable is the client, but may include other functions within the Human Resources Management and Support organization.

As discussed in section 3.1, a completed project may result in follow-on work or internal spinoffs. These continuation efforts should be treated as new projects. Each project should be a one-time effort and have a definite life cycle. Closing out a project is the ultimate goal of all individuals involved.

The project must be phased out (i.e., a determination should be made as to what is left to be done, who is to do it, and when it must be done). Closing out the project requires that the following activities should be performed:

- The project file must be packaged, stored, and a summary of the project history prepared.

- Consideration must be given to a scheduled release of team members and preparation of their final performance evaluations.

- A checklist of unfinished or clean-up project tasks should be prepared.

- The project evaluation report should be prepared. This is discussed in section IX of Appendix A.

- A post-implementation analysis should be made. This item is discussed in section 3.9.

Once the Board of Directors approves terminating the project, the project manager prepares a **project closeout report** and submits it to the Board of Directors. It should be written immediately after the project deliverables are provided to the end-user, but before the project manager leaves the project. This document is primarily for the internal use of the Board of Directors in their ongoing, strategic management of the Human Resources Management and Support organization and in their management of subsequent project teams. It may also provide broad guidance to future project managers. The purpose of this report is to help cumulatively refine the project management **system** itself. In the patterns these reports reveal, strengths in the system which must be fostered and weaknesses which must be addressed are highlighted.

In writing this report, the project manager might want to have some focal questions in mind:

-- "If it had been known earlier, what would have improved the various inputs of the Board of Directors into my plan, its execution and revision?"

-- "What were the best and worst aspects or incidents of the project team experience?"

-- "In terms of things that were under my control, what would I have done differently, if I had known what I know now?"

-- "With regard to developments over which I had little or no control at the time, is there any way these could have been foreseen or better handled?"

It should be clear from the tenor of these questions that the project closeout report identifies major successes and failures and also major problems encountered and their solutions. It should also summarize planned versus actual project objectives, deliverables, schedules, and resource expenditures, as well as a summary of significant events and lessons learned.

3.9 Post-Implementation Review

The final phase of the Human Resources Management and Support project management system is the **post-implementation review.** Each project plan should spell out the mechanics of performing the post-implementation review: when, who, and how. This review has two components, each serving distinct purposes. As appropriate to a particular project, other reviews may be prescribed and their timing scheduled in the client contract and/or in the project plan.

The first component of the post-implementation review is a **project deliverable review.** The project deliverable review focuses on the output provided by the project team. The purposes are to assess the output as implemented and determine what further actions should be taken to improve or enhance them. This review should be conducted after the output has been used for a reasonable period of time.

The nature of this review depends on the particular project and its output. However, the review should evaluate the quality of the output; identify specific shortcomings, desirable enhancements, and

new, related products; and a recommended course of action. Depending on the project, the results of the project deliverable review should be given to the client and/or Board of Directors for consideration of the recommendations.

The second component of the post-implementation review is a **client satisfaction evaluation.** This can be conducted as soon as the project is terminated or after the client has used the outputs of the project for a period of time.

This component is primarily for the use of the Board of Directors and serves a number of purposes. First of all, it brings to bear the more client-oriented approach which the Human Resources Management and Support organization has adopted and does so in a manner that is more than symbolic.

Secondly, reports of client satisfaction (or dissatisfaction) are useful elements of the Human Resources Management and Support marketing strategy.

Thirdly, it permits the Board of Directors to gauge the project team's success in meeting the project's technical objectives, which were provided by the client or end-user organization in the first place.

Finally, it permits the Board of Directors to assess client's input and feedback during the course of the project against a final report and also institutionalizes such feedback channels.

The client satisfaction evaluation may be conducted in a number of ways. Interviews with client or end-user officials are one way to gather the necessary information. Another is the use of a rating form or survey instrument. Such a survey format would have some questions that could be fairly standard across all Human Resources Management and Support projects and would reflect common standards of performance. Examples of such issues are:

-- Meeting of time frames

-- Completeness of work

-- Competence of team members

-- Performance of the team

-- Appropriateness of the solution/product

-- Responsiveness

-- Amount of changes required to original design

-- Satisfaction with changes

In addition, in keeping with the interest of particular client organizations and with the terms, mechanisms, and time frames established in the client contract, this standard format may be enlarged. This would be appropriate in instances in which the client has asked that the post-implementation review occur after a period of using the project team's output. In such time-delayed evaluations, appropriate issues to be explored might include:

-- Anticipated versus actual performance of the deliverable.

-- Ease of operation and maintenance.

-- Frequency of revision needed for on-line product.

-- Effect of the deliverable upon the issue or problem it was designed to address (e.g., productivity, motivation, attrition, recruitment).

Besides these broad issues that should be explored as part of the Post-Implementation Review, attention should be directed to IRM 2340, User's Handbook for Automation, Post Implementation Review, which provides general guidance on the reasons for doing evaluations and describes several areas to consider.

HUMAN RESOURCES MANAGEMENT AND SUPPORT PROJECT MANAGEMENT PROCESS

I. Generate and Analyze Idea

Project ideas can originate from anyone within or outside the Human Resources Management and Support Organization.

A. The proposal author will assess idea for:

1. the need

2. project value (cost/benefit)

3. organization's ability to perform proposed work

4. organization's expected commitment to the project

B. The proposal author will determine if:

1. the idea is cross-functional within HRMS

2. HRMS would have primary responsibility for completing the project

3. the project should be controlled by the HRMS Board of Directors

4. there would be a definable end result (e.g., product)

5. there would be a definable starting and ending date; that is, a one-time project as opposed to a continuing work effort

II. Develop Project Proposal

Project proposal will be developed by Human Resources Management and Support personnel. Proposal will be concise (1-3 pages).

A. Prepare proposal to include:

1. description of job to be done (objectives, client, benefits, and definable end result/product)

2. measurable and verifiable acceptance criteria (determine the critical aspects of proposal -- performance specification, cost, time schedule)

3. action plan

   a. strategy/key activities

   b. outline time schedule

   c. estimated resources by activity or total project (staff weeks and dollars)

B. Review proposal with client, other HR personnel, and/or the "project support group" and adjust as appropriate

III. Review of Project Proposal by HRMS Board

A. Obtain approval from any Board member to submit proposal to Board of Directors (modify plan if necessary).

B. Submit proposal to the Board's Executive Secretary.

Secretary reviews proposal for completeness, schedules Board meeting, and distributes to Board members before meeting.

C. Proposal author makes presentation to the Board.

D. Board approves, disapproves, or modifies proposal.

IV. Select Project Manager and Team Members

Both bargaining unit and nonbargaining unit employees can be selected as project managers and team members.

A. Upon approval/modification of a project proposal, assignment of a project manager and team members will be made. The project management skills inventory may be used as may an ad hoc announcement for volunteers. Any names resulting from these sources will be sent to the Board for their consideration. The Board is not limited to these resources in making project assignments.

B. At this point, the Board also assigns a Board member (other than the project manager's Division Director) to serve as a day-to-day consultant for the manager, approve the length of the project, and determine the number of team members.

(The proposal presenter may suggest a project manager, project length, and team size, with the Board making the final decision.)

V. Develop Project Plan

A. Project team reviews proposal and prepares and submits to the Board for approval a detailed project plan which includes at least the following:

1. milestone completion dates (including client contract, if applicable)

2. description of deliverables

3. resource requirements

4. project completion event (time, service complete, deliverable)

5. elaboration of project objectives, approaches, etc.,

6. "go/no-go" decision points.

B. The Board of Directors reviews and approves or modifies the plan.

The project plan serves as the agreement between the manager and the Board of Directors on what is expected from the project.

VI. Execute Project Plan

Execution of the project plan will vary with the individual project. The project manager will take actions necessary to ensure the plan is accomplished.

A. Project manager:

1. assumes total responsibility for project completion

2. exercises maximum autonomy in managing the project

3. has rapid and easy access to the resources required to execute the project.

B. The Board member assigned as a consultant is available to the project manager to provide guidance and secure Board decisions as necessary.

VII. Review and Report Progess

A. Project reviews will be conducted periodically, when scheduled in the project plan (usually a go/no-go decision), and when significant issues arise.

B. The project manager reviews progress with the full Board of Directors. If a large number of projects are being worked on, regular Board meetings to review status of all projects should be scheduled.

C. The Board reviews milestone progress, resources used to date, and issues.

D. As necessary, the Board makes decisions affecting the project.

VIII. Terminating the Project

Normally, a project will end when it is completed, but the project manager or Board of Directors may determine at any time that a project should be cancelled before it is completed. The following procedure applies to both cancelled and completed projects.

A. Project team prepares and submits a decision paper to the Board of Directors to terminate a project containing any information needed to make the decision.

B. Upon approval to terminate, the project team prepares a project closeout report containing:

1. planned vs. actual project objectives

2. planned vs. actual project deliverables (description only)

3. planned vs. actual project schedule and resource expenditures

4. summary of significant events and lessons learned.

The purpose of the closeout report is to document projects in a common format and to provide information for future project groups. Serves as the project team's input to the project evaluation.

C. The project closeout reports are maintained by the Office of Projects and Organizational Impacts Management, Human Resources Division.

IX. Evaluate Project and Team Members

A. Project manager evaluates performance of each project member.

1. Evaluations occur at the end of each rating period, when a member leaves the team, and when a project is terminated.

2. Evaluations are documented as a memorandum to the supervisor of record.

3. The supervisor of record uses the memorandum as input to the employee's evaluation. The supervisor will determine the weight to be given to project participation in consideration of the employee's overall performance.

4. As appropriate the project manager prepares and submits award nominations for team members.

B. The Board of Directors or an assigned Board member evaluates the performance of the project manager and evaluates the project.

1. Project manager evaluations occur at the end of each rating period, when a project manager leaves the team, and when a project is terminated.

2. Project evaluations occur when a project is terminated.

3. Project manager and project evaluations should assess the extent to which objectives were met, quality and timeliness of deliverables, extent to which project is accomplished within approved resource estimates, and client satisfaction.

4. Evaluations are documented as a memorandum.

5. Project manager evaluations are sent to the supervisor of record.

6. The supervisor of record uses the memorandum as input to the employee's evaluation.

7. Project evaluations are given to the Office of Projects and Organizational Impacts Management, Human Resources Division.

8. As appropriate the evaluator prepares and submits award nominations for project managers.

PROJECT KNOWLEDGE AND SKILLS

Project Manager Knowledge and Skills

- Project Management: Applies knowledge and skills of the demands of project management, including recognition that the project team or organization is different from traditional operations. Manages an environment of more uncertainty, complexity and risk; combines creativity with effective marketing; ensures top management sponsorship; and manages political, technical and cultural implications of change.

Establishes new coordinating mechanisms between project teams and existing functions. Modifies personnel management and supervisory approaches to evaluation, recognition, and rewards as necessary (within the bounds of law, regulation, and union agreements or special negotiations) to meet the needs for innovation. Ensures successful transfer/handoff of end products and procedures to operating organizations.

- Planning and Organizing: Establishes objectives, requirements, priorities, milestones, and deadlines to determine course of action for work. Accurately estimates resource needs and plans for contingencies. Recommends or selects a project organizational structure designed for maximum efficiency and effectiveness.

- Directing, Monitoring & Controlling: Assigns or delegates work appropriately. Effectively monitors the work of others against established objectives and performance standards. Takes necessary action to ensure project is completed on schedule, within budget, with satisfactory quality.

- Leadership: Builds the project team, supports and motivates individual team members. Clarifies objectives and scope of project to ensure members are working towards the common goal. Applies sound knowledge of management principles and techniques to accomplish work through others. Ensures project visibility and effectively represents the project team.

- Interpersonal Skills: Interacts successfully with others in one-to-one and group situations. Relates well to persons from diverse cultural and ethnic backgrounds and disciplines. Effective in meeting and dealing with executives, managers, and employees at all levels. Brings out the best contribution of knowledges and skills from others. Elicits cooperation and collaboration, works to resolve conflicts.

- Analysis and Decision Making: Effectively gathers information, defines problems, identifies relationships, assesses impacts, and makes sound conclusions and recommendations. Accurately determines the quality of projects, programs, or performance by comparison against standards and objectives.

- Communication: Listens to others. Makes effective oral presentations. Conducts productive meetings. Ensures information is obtained from and communicated to appropriate individuals and organizations, including clients, top management, and affected line and staff offices. Written products are clear, concise, accurate and appropriate for intended receiver. Makes good use of information technology.

- Integration: Applies a broad, generalist perspective and operates using a systems approach. Coordinates multidisciplinary work within the team and with other parts of the organization. Identifies relationships and impacts that cross functional boundaries. Plans and actions integrate environmental factors, people, tasks, technology, office environment and organizational/management considerations.

- Flexibility and Innovation: Open to new ideas and behaviors. Willing to learn. Tolerant of stress/ambiguity/change. Develops new or revised policies, procedures, programs, or solutions to problems. Encourages and supports suggestions for improvement and innovation from others.

- Initiative: Independently originates action and makes decisions in a timely way. Deals effectively with unfamiliar or unanticipated situations.

- Influence and Marketing: Persuasive. Gains acceptance and agreement on proposals and products; able to get ideas implemented.

- Time-Management: Manages personal time so that priorities are accomplished on schedule without disrupting quality of work or personal well-being. Meets deadlines.

- Job Knowledge: Knows the organization, functions and objectives of IRS and Human Resources Management and Support activities both in the National Office and in the field. Has thorough technical knowledge of personal program area or discipline, including principles, procedures and current developments in the field. Makes appropriate use of other subject-matter experts.

- Quality Improvement: Builds quality improvement into work plans, processes, products and evaluation. Work process and products are effective and efficient. Results show application of ongoing learning.

Team Members' Knowledge and Project Skills

The team members' knowledges and skills are the same as the project manager's with the exception of the following definitions:

- Project Management: Applies knowledge and skills of the demands of project management, including recognition that the project team is different from traditional operations. Performs in an environment of more uncertainty, complexity and risk; combines creativity with effective marketing; seeks management support; and deals with the political, technical, and cultural implications of change.

- Planning and Organizing: Establishes objectives, requirements, priorities, milestones and deadlines to determine course of action for work. Accurately estimates resource needs and plans for contingencies. Recommends or selects a project organizational structure designed for maximum efficiency and effectiveness.

- Directing, Monitoring & Controlling: Participates with management in the appropriate assignment and delegation of work. Effectively participates in monitoring the team's work against established objectives and performance standards. Participates in taking necessary action to ensure project is completed on schedule, within budget, with satisfactory quality.

- Leadership: Participates in building the project team, supporting and motivating other team members. Participates in clarifying objectives and scope of project to ensure team is working towards the common goal. Applies knowledge of management principles and techniques in accomplishing the team's work. Assists in ensuring project visibility and, as required, effectively represents the project team.

- Networking: Develops and uses personal contacts to gather and exchange information, techniques, and moral support.

- Administrative Support: Applies knowledge of clerical/secretarial and administrative procedures to support project team meetings, travel, communications, and reports. Contributes to problem solving based on personal perspective of work and administrative knowledge.

EDUCATION AND TRAINING

Potential Education and Training for the Project Team

1. Project Management: Managing a project development process from its inception to its termination.

2. Change Management: Identifying predictable reactions to change and applying tools and methods to facilitate the change process.

3. Conflict Management: Managing yourself and others in conflict and power situations.

4. Consulting: Examining the consulting process, roles and skills for people in a staff function to interact with line management.

5. Communication: Preparing written material and presenting information verbally in a manner that is appropriate for the audience and accomplishes its intended purpose.

6. Management Information Systems: Developing information systems and managing the data collection process.

7. Marketing: Analyzing the marketplace (i.e., organizational/customer needs) and marketing your professional services.

8. Meeting Management: Planning and conducting a meeting in an efficient and effective manner.

9. Negotiating: Securing win-win agreements while successfully representing a special interest in a decision situation.

10. Problem Solving: Identifying problems and applying individual and group problem solving strategies to the decision-making process.

11. Quality Management: Applying techniques/approaches for achieving and measuring quality.

12. Forecasting: Implementing and evaluating long-range forecasting methods relevant to projecting organizational and program trends.

13. Financial Budgeting: How to estimate resources, financial needs.

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TEAM BUILDING

Team Building Checklist for Project Managers

1. Recognition of the problem or the opportunity.

   New team examples include:
   - clarify goals & priorities
   - clarify roles/expectations
   - learn more about new members

   Experienced team examples include:
   - review & update goals
   - improve teamwork
   - resolve conflicts

2. Data gathering

   - consult with Organization Development or the Office of Projects and Organizational Impacts Management, Human Resources Division
   - obtain facts & opinions from all team members (and clients or other officials as necessary)
   - review project proposal, IRS procedures, and plans that apply
   - use questionnaires, interviews or meetings & review work records & expectations
   - summarize the data
   - feed back data to all team members

3. Diagnosis

   - prioritize data
   - identify causes
   - identify major themes
   - establish agenda for discussion

4. Problem-solving and planning

   - address issues in priority order
   - brainstorm solutions
   - draw up action plan (who/what/when)
   - define success criteria or standards

5. Implementation of Action Plan

6. Evaluation

- review progress in meeting goals for tasks, processes, or interpersonal relationships
- compare results to action plan and success criteria
- make necessary adjustments.

(Continue six-step cycle as necessary.)

Some Characteristics of Effective Teams

1. The team accomplishes its established purpose and objectives. The needs of the organization are met.

2. Group and individual goals are clear.

3. Individual needs and goals are incorporated into the group's objectives. The needs of the people are met.

4. Members agree on their individual roles and responsibilities. Differences are negotiated and resolved when they surface.

5. Members ask for what they need and want from others on an on-going basis. Team members contribute their help in a cooperative and collaborative way.

6. The group is aligned as one; there is a sense of team spirit, high involvement and commitment.

7. Decision-making involves participation by the members; consensus is reached where possible.

8. Agreement is reached on procedures to complete tasks and resolve problems.

9. Feelings are dealt with openly.

10. The group continually evaluates itself and makes necessary adjustments.

11. The climate is open and supportive -- new ideas are encouraged and solutions to problems are worked through.

12. Information is communicated to those who need it accurately and in a timely manner.

13. Honest dealings, trust, respect and positive reinforcement are the norm for the team.

14. Contributions of individual members and the team as a whole are acknowledged by the members.

System Development Life Cycle

Technical System Documentation

Initiation Phase	Development Phase				Operation Phase	
	Definition Stage	Design Stage	Programming Stage	Test Stage	Full Implementation	Maintenance
Concept Definition Feasibility Study C/B Analysis	Functional Requirements Data Requirements	System Specification Program Specification Data Base Specification Test Plan	Operations Manual Program Maintenance Manual Users Manual	Test Analysis Report		

System Development Life Cycle

Human Factors Documentation

Initiation Phase	Development Phase				Operation Phase	
	Definition Stage	Design Stage	Programming Stage	Test Stage	Full Implementation	Maintenance
Organizational Impact Analysis	Task Analysis	HW/SW Ergonomics Specification	Workstation & Site Design Training Plan & Course Development			
		Work System Specification	Employee Recruitment & Selection Plan			Post-Implementation Review
Personnel Redeployment Plan			System Implementation Strategy			
		Evaluation Plan		Work Design Evaluation Report		

WORK BREAKDOWN STRUCTURE

Human Factors Activities in the
Information Systems Development Life Cycle

1.0 Conduct Organizational Impact Analysis

- 1.1 Conduct analysis
- 1.2 Document analysis
- 1.3 Review and approve document

2.0 Develop Personnel Redeployment Plan

- 2.1 Assess redeployment needs
- 2.2 Develop and assess alternatives
- 2.3 Document selected alternative
- 2.4 Review and approve document

3.0 Conduct Task Analysis

- 3.1 Define and document current system tasks
- 3.2 Define and document new system tasks
- 3.3 Determine and document how tasks will be performed and managed
- 3.4 Identify and document required knowledge, skills, and abilities
- 3.5 Review and approve documents

4.0 Develop Hardware/Software Ergonomic Specifications

- 4.1 Define and document hardware ergonomic specifications
- 4.2 Define and document software ergonomic specifications
- 4.3 Review and approve specifications

5.0 Develop Work System Specification

- 5.1 Develop new work system
  - 5.1.1 Develop work flow
  - 5.1.2 Develop information flow
  - 5.1.3 Develop work control processes
  - 5.1.4 Develop management processes
  - 5.1.5 Define organization
    - 5.1.5.1 Develop organization charts
    - 5.1.5.2 Determine staffing patterns

5.1.5.3 Develop position descriptions
5.1.5.4 Classify positions

5.1.6 Develop procedures

5.2 Document work system specification
5.3 Review and approve work system specification

6.0 Develop Evaluation Plan

7.0 Develop Workstation and Site Design

7.1 Define requirements for work sites and workstations
7.2 Document workstation and site design
7.3 Review and approve workstation and site design

8.0 Develop Training Plan and Courses

8.1 Determine training requirements
8.2 Document training plan
8.3 Review and approve training plan
8.4 Develop training courses
8.5 Review and approve training courses
8.6 Conduct training
8.7 Evaluate and modify training

9.0 Develop Employee Recruitment and Selection Plan

9.1 Assess staffing needs
9.2 Determine recruitment and selection strategy
9.3 Document recruitment and selection plan
9.4 Review and approve recruitment and selection strategy

10.0 Develop Implementation Plan

10.1 Determine implementation plan
10.2 Document implementation plan
10.3 Review and approve implementation plan

11.0 Develop Work Design Evaluation Report

11.1 Conduct work design test
11.2 Evaluate work design test results
11.3 Prepare work design evaluation report
11.4 Review and approve work design evaluation report

12.0 Conduct Post-Implementation Review

12.1 Develop post-implementation review process
12.2 Conduct post-implementation review
12.3 Determine follow-up activity
12.4 Prepare post-implementation review report
12.5 Review and approve post-implementation review report

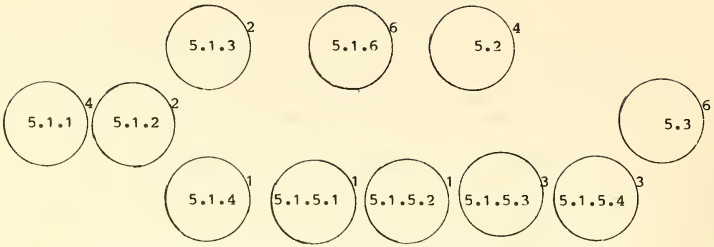
CRITICAL PATH NETWORK

Task precedence chart

Human Factors Activities in the
Information Systems Development Life Cycle

WBS Task	Depends Upon	Duration
5.1.1	-	4 wks
5.1.2	5.1.1	2
5.1.3	5.1.2	2
5.1.4	5.1.2	1
5.1.5.1	5.1.3, 5.1.4	1
5.1.5.2	5.1.5.1	1
5.1.5.3	5.1.5.2	3
5.1.5.4	5.1.5.3	3
5.1.6	5.1.3, 5.1.4	6
5.2	5.1.6	4
5.3	5.1.5.4, 5.2	6

Critical Path Method Network



Numbers inside the circles refer to the WBS task in Appendix F.
Numbers outside the circles refer to the duration of the task.

WBS Task	Duration	EST	LST	Slack
5.1.1	4 wks	week 1	week 1	-
5.1.2	2	5	5	-
5.1.3	2	7	7	-
5.1.4	1	7	8	1 week
5.1.5.1	1	9	11	2
5.1.5.2	1	10	12	2
5.1.5.3	3	11	13	2
5.1.5.4	3	14	16	2
5.1.6	6	9	9	-
5.2	4	15	15	-
5.3	6	19	19	-

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